ELECTRONICS
SYSTEMS AND DEVICES
Process Control Instrumentation

DUAL CHANNEL TEMPERATURE CONTROLLER ESD 9213D

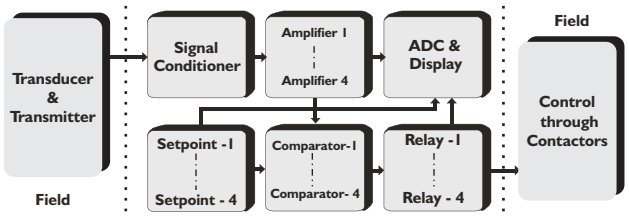
INTRODUCTION

Temperature indicators / controllers play an important part in any process industry. Quick and accurate measurement / control of a process temperature will improve the final product quality, reliability and reduce rejection. Temperature indication and control is therefore one of the prime considerations in any process industry.

The ESD 92 series is a On / Off type Digital temperature indicator / controller designed for fast and accurate measurement / control. The instrument is designed using highly reliable electronic components. The process temperature is displayed in digits, which gives better resolution compared to analog indicator. The ESD 921series accepts all types of Pt - 100, Thermocouples, 0 - 20 mA as well as 4 - 20 mA

as input. The instrument is immune to mechanical vibrations. Even the mounting position will not affect the measurement accuracy. The large bright RED LED seven segment display allows long distance readability. Use of highly reliable electronic components with lowest temperature coefficient ensure long and trouble free service. The instrument is tested for its performance under various climatic conditions. Wide ranges of measurements are available depending on the sensor used.

PRINCIPLE OF OPERATION



The ESD 92 series is based on the principle of high input impedance amplifier feeding a comparator followed by a relay and an ADC. The signal from the transducer is fed to a sensor compensation circuit, where automatic ambient compensation in case of thermocouple & lead resistance compensation in case of Pt-100 is achieved. Duly compensated signal is fed to a signal conditioning amplifier, output of which is given to digital display as well as to a comparator. The comparator compares the process value with the desired set value. Output of the comparator is given to the relay which switches ON or OFF depending upon the process value w.r.t. the setpoint. Linearisation of the transducer signal is done by hardware in the input circuit. This gives a standardized signal to the ADC which drives the LED display, indicating the temperature .

APPLICATION

The ESD 92 series temperature controllers can be used in almost any industry, laboratory etc. where accurate temperature control is needed to be carried out.

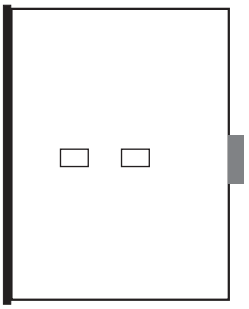
FEATURES

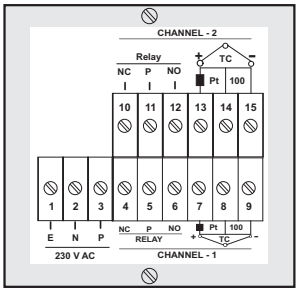
- ✓ Proven trouble free field performance
- ✓ Highly compact
- ✓ Dust and vermin proof enclosure with epoxy powder coating
- ✓ LED display gives better readability at long range
- ✓ Fast response time
- ✓ Available in different DIN std. cutouts
- ✓ Designed for Pt-100, Thermocouples and 4 - 20 mA input
- ✓ Fail safe relay logic
- ✓ Maximum MTBF and minimum MTTR
- ✓ Feather touch push button
- ✓ Wide supply variation and environmental band

SPECIFICATIONS

Model	: ESD 9213D
Ranges	: Std. as per chart below (other on demand)
No of inputs	: 2
Input	: Pt - 100 / Thermocouple / 4 - 20 mA
Indication	: 199.9 12.5 mm RED LED display
Indication accuracy	: +/- 0.5 % of full scale +/- 1 digit
Least count	: 0.1°C up to 200°C, 1°C above 200°C
No of displays	: 2
Power supply	: 230 V AC, +/- 10 % , 50 Hz with earth
Relative humidity	: Less than 90 % non condensing
Ambient temperature	: 0 to 55°C
Amb. Temp. compensation	: Built in up to 55°C
Accuracy deviation due to	
a) Temperature change	: +/- 0.002 % /°C , ref at 25°C
b) Supply variation	: +/- 0.001 % / V
Sensor break indication	: Up scale [1 _ _ _] (down on demand)
Input impedance	: < 10 Mohms, (only for T/C input)
Recalibration (if reqd)	: By zero and span potentiometers inside
Power consumption	: 6 VA
Setpoints	: 1 per input
Control action	: ON / OFF
Setpoint read	: By pressing self release switch
Setpoint setting	: By pressing self release switch and turning set potentiometer
Relay output	: One set of potential free Relay changeover contact rated 5 Amp resistive at 230V AC per setpoint
Relay logic	: 1. Actual temp. < setpoint - Relay ON for heating application (factory set) 2. Actual temp. > setpoint - Relay ON for cooling application (on demand)
Relay ON indication	: 3mm RED LED
Control sensitivity	: 0.25% of full scale (adjustable inside)
Sensor break protection	: Relay 'Off' (relay 'On' on demand)
Front facia	: ABS plastic suitable for IP 55 having size 96 x 96 mm
Mounting	: Flush panel
Enclosure	: Mild steel CRCA sheet with powder coating
Panel cutout	: 92 x 92 mm
Termination	: Screwed type suitable for 2.5mm^2 wire
Weight	: 1 kg approximately

INSTALLATION





ORDERING INFORMATION

ESD 9213D

X3

Input
1 - Pt - 100
2 - J type T/C
3 - K type T/C
4 - R type T/C
5 - S type T/C
6 - 0 to 20 mA
7 - 4 to 20 mA
8 - 0 to 2V DC
9 - Other

X4

Range
0 - -50 to 50°C
1 - 0 to 100°C
2 - 0 to 200°C
3 - 0 to 100%
4 - 0 to 400°C
5 - 0 to 600°C
6 - 0 to 800°C
7 - 0 to1000°C
8 - 0 to1200°C
9 - Other

X5

Relay output
1- 1 C/O 5 Amp
2 - 1 C/O 10 Amp
3 - 2 C/O 5 Amp
4 - Other

X6

Power supply
1 - 230 V AC
2 - 110 V AC
3 - 24 V AC
4 - 24 V DC
5 - Other

Input	Standard Ranges in °C		
Pt-100	-50 - 50	0 - 100	0 - 200
J	0 - 200	0 - 400	0 - 600
K	0 - 200	0 - 400	0 - 600
	0 - 800	0 -1000	0 - 1200
R, S	800 -1600		
mA / mV	0 to 100 % or process value		

ALSO SELECT ESD ...

BACK END
- ✓ Pt - 100
- ✓ Thermocouple
- ✓ Thermowells
- ✓ Compensating Cables

SAME RANGE
- ✓ Single Setpoint Controllers
- ✓ Two Setpoint Controllers
- ✓ Multi Setpoint Controllers
- ✓ Multi Channel Controllers
- ✓ Blind Controllers
- ✓ Supersize Controllers
- ✓ Flameproof Controllers

FRONT END
- ✓ Alarm Annunciators
- ✓ Automation Panels

ESD/TIC/4310

ELECTRONICS SYSTEMS AND DEVICES
Process Control Instrumentation

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UK

Unspecified dimensions are in mm. Photos not to the scale. Due to continuous development above details are likely to change.